REMARKS

By the present y the present Amendment, a new abstract has been provided pursuant to the request by the Examiner. In addition, various revisions have been made throughout the specification to correct typographical and other matters. For instance, the term "porous" has been changed to "polar" and one of the temperatures at which IZOD impact resistance test has been corrected in Tables 3 and 4 pursuant to the description provided in the last paragraph on page 56. A number of the claims have also been amended to define certain aspects of the present invention with greater precision. More specifically, claim 1 has been revised to include the phrase "a mixture consisting essentially of", claim 2 has been amended to recite a "reactive" compatibilizer as described in paragraph [0066], and claim 7 has been amended to recite more specific component ranges consistent with the description provided in paragraph [0103]. Finally, claims 12 and 14 have been cancelled without prejudice or disclaimer. The cancellation of claim 12 renders moot the rejection of this claim under 35 U.S.C. §112.

Before addressing the reasons why the claims now of record are patentable over the cited prior art, applicants believe that a discussion of the present invention and the advantages which may be obtained therefrom is in order. As discussed in greater detail in the specification, one aspect of the present invention relates to a resin modifier (C) obtained by reacting a mixture consisting essentially of a polyolefin (A) having a group which reacts with a carbodiimide group, and a carbodiimide group-containing compound (B) wherein the content of the carbodiimide group is from 1 to 200 mmol per 100 grams of the resin modifier. This resin modifier can improve the impact resistance in a polymer alloy by improving the compatibility

between a polar group-containing polymer and an olefin polymer. A composition containing the resin modifier, the polar group-containing polymer and the olefin polymer in defined amounts is recited in amended claim 7.

The specification also teaches that it is important to prepare the resin modifier by reacting the polyolefin having a group which reacts with a carbodiimide group and the carbodiimide group-containing compound before the polar group-containing polymer (D) and the olefin polymer (E) are added. The sequence of combining the resin modifier (C) the polar group-containing polymer (D) and the polyolefin polymer (E) is described in paragraph [0104]. Furthermore, the Examples illustrate the importance of this technique. For instance, as explained in paragraph [0151], Example 1 provides a composition in which 20 parts by weight of the resin modifier (C-1), 60 percent by weight of a polyethylene terephthalate resin as the polar group-containing polymer (D) and 20 percent by weight of an ethylene-1-butene copolymer are melt kneaded to prepare pellets of the polar group-containing polymer composition (F). The IZOD impact resistance at 23°C and minus 40°C were measured and the results thereof are set forth in Table 3. The resin modifier used in this Example was prepared by reacting a polyolefin graft polymer (A) and a carbodiimide group containing compound (B) as set forth in Example 1 of Table 1. Thus, Example 1 as set forth in Table 3, provides an example of a previously prepared resin modifier (C) added to a polar group-containing polymer (D) and a polyolefin polymer (E) which obtains good impact resistance, particularly at low temperatures.

To contrast this Example, one may consider Comparative Example 3 as described in paragraph [0164] which reacts the same components, but without

previously forming the resin modifier. The resulting composition exhibits substantially inferior impact resistance. For the Examiner's convenience, the results of Example 1 and Comparative Example 3 are provided in the following table.

	EXAMPLE 1	COMPARATIVE EXAMPLE 3
Polyolefin graft polymer (A); (parts by weight)		18.773
Carbodiimide containing compound (B); (parts by weight)		1.227
Carbodiimide resin modifier (C); (parts by weight)	20	
Polar group containing polymer (D); (parts by weight)	PET 60	PET 60
Polyolefin polymer (E); (parts by weight)	EB-4 20	EB-4 20
Polar polymer composition (F); (parts by weight)	100	100
Polar polymer composition (F);		
23°C IZOD property (J/m)	752	698
-10°C IZOD property (J/M)		
-40°C IZOD property (J/m)	410	154
Evaluation of injection molded article of porous polymer composition	O	O

From the discussion provided in the specification and particularly in paragraphs [0164] and [0165], as well as the results set forth in the Tables in the specification, it is evident that the presence of the polar group-containing polymer (D) and the polyolefin polymer (E) has a material effect on the characteristics of the resin modifier (C) obtained by reacting the polyolefin (A) having a group which reacts with a carbodiimide group and a carbodiimide group-containing compound (B).

Accordingly, the term "consisting essentially of" excludes the presence of such materials that affect the basic characteristics of the defined resin modifier (C).

With the claims now of record and the foregoing discussion in mind, applicants respectfully submit that the various aspects of the present invention are patentable over the documents cited in the Official Action. Maruyama et al., U.S. Patent No. 4,707,512, discloses a polyester composition comprising a thermoplastic polyester and a modified copolymer of ethylene and an α,β-olefin prepared by grafting (1) an ester of an α,β -unsaturated carboxylic acid with a copolymer of ethylene and α-olefin. Where necessary, an epoxy compound, a carbodiimide and an organic filler can be included in the reaction. The ester of the α,β-unsaturated carboxylic acid is represented by formula (I) set forth in column 2 of the patent. Maruyama et al. further discloses in the paragraph beginning at column 7, line 34 that the components, including the epoxy compound, the carbodiimide compound and the organic filler can be combined with the polyester by several methods including dry-blending of the polyester and the additives and melt-extruding the material to form pellets.

The Examiner has referred to Example 13 of Maruyama et al. in the Official Action. This Example follows the same procedure as used in Examples 9-11 wherein polybutylene terephthalate, modified copolymers of ethylene and butene-1 and bisphenol A diglycidylether are blended and extruded at a resin temperature of 250°C. Example 13 further adds 0.5 part by weight of bis(dipropylphenyl) carbodiimide and is asserted as having good hinge-resistance.

Maruyama et al. does not disclose each and every aspect of the presently claimed invention and would not lead those of ordinary skill in the art to the various

aspects of the invention defined in the claims of record. The patent does not require a cabodiimide compound and; even when a carbodiimide compound is present, it is not used to prepare the resin modifier recited in the claims. Indeed, this point appears to be recognized by the Examiner in the last paragraph on page 4 of the Official Action. Instead, to the extent that a carbodiimide compound is present, Maruyama et al. teaches that the compound is added to the same reaction mixture as the other components, such as polybutylene terephthalate, the modified copolymers of ethylene and butene-1 and the diglycidylether compound, as set forth in Example 13.

As discussed above with respect to Example 1 and Comparative Example 3 of the present application, this collective reaction mixture is not what is recited in the claims. This point is further emphasized by the step-by-step method recited in claim 15. Furthermore, since applicants have provided evidence that shows that the resin modifier of the present invention can provide substantially improved impact resistance when separately prepared and then added to a polar group-containing polymer (D) and an olefin polymer (E), compared to when all of the components are reacted together, it is clear that not only are the claims different from what is disclosed in Maruyama et al., but that the claims are patentable over the fair teachings of this cited patent.

With regard to claim 7, Maruyama et al. again fails to disclose the defined resin modifier of claim 1. In addition, the patent does not disclose or suggest the now claimed amounts of both the polar group-containing polymer (D) as well as the olefin polymer (E). Accordingly, this claim and the claims depending therefrom are further patentable over the teachings of the patent and applicants respectfully submit

that all of the presently claimed aspects of the invention are patentable over Maruyama et al.

Turning to the rejection based on JP 2003-268215 (Sakai et al.), this document discloses a thermoplastic polyester resin composition obtained by blending 100 parts by weight of polyethylene terephthalate resin, 0.1 to 20 parts by weight of an acid-modified polyolefin copolymer and an epoxy-modified polyolefin copolymer, 0.01 to 10 parts by weight of a carbodiimide compound, 0.01 to 5 parts by weight of an aliphatic carboxylic acid or its derivative and 0.5 to 150 parts by weight of an inorganic reinforcing material. Sakai et al. discloses that the composition has high heat-stability and can exhibit excellent surface appearance when formed into an embossed-molded article. The composition is prepared by melt blending all of the components in an extruder or kneader as set forth in paragraph [0012].

Similar to Maruyama et al., Sakai et al. combines all of the components together instead of preparing the resin modifier from a mixture consisting essentially of a polyolefin (A) having a group which reacts with a carbodiimide group and a carbodiimide group-containing compound (B) in the recited amount. As explained above, this modifier is not obtained when other modifying materials, such as the polar-group containing polymer exemplified by polyethylene terephthalate, is also present. Indeed, aforementioned Comparative Example 3 combines these materials and results in a polymer composition (F) that exhibits inferior impact resistance, particularly at low temperatures. Thus, Sakai et al. also cannot be used to reject any of the claims now of record.

The further reliance on Sinclair, U.S. Patent No. 5,216,050, for the teaching of a polylactic acid as the polyester does not remedy the noted deficiencies of either Maruyama et al. or Sakai et al. Therefore, even assuming that a proper basis exists for combining the respective disclosures of the documents, one of ordinary skill in the art would still not be led to the invention as defined in the claims of record or to an appreciation of the substantial advantages which can be obtained therefrom that have been illustrated in the present application. Thus, the claims of record are also patentable over the combinations of prior art.

For all of the reasons set forth above, applicants respectfully submit that the claims of record are patentable over the cited prior art, particularly in view of the technical evidence that has been provided, and therefore requests reconsideration and allowance of the present application.

As a final matter, applicants respectfully note that a Second Information Disclosure Statement was filed on February 23, 2009, and applicants request that the Examiner consider the information and acknowledge it in the next Official Action.

Should the Examiner wish to discuss any aspect of the present application, he is invited to contact to the undersigned attorney at the number provided below.

Respectfully submitted,

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Date: March 13, 2009